

REMARKS

Applicant respectfully traverses the rejection of claims 1 and 4-16 under 35 U.S.C. § 103(a) over U.S. Patent No. 6,667,285 to Kawahara et al. ("Kawahara") in view of U.S. Patent No. 6,228,282 to Shimomura et al. ("Shimomura").

Claim 1 recites a refrigerating machine oil composition comprising a prescribed base oil, a phosphorothionate, a phosphorus-based extreme pressure agent other than the phosphorothionate, and an oil agent. The phosphorothionate, phosphorous-based extreme pressure agent, and oil agent are further set forth in the form of respective Markush groups.

As acknowledged at the Office Action, p. 4, Kawahara does not disclose use of a phosphorothionate and a phosphorous additive other than the phosphorothionate.

In response to the Reply to Office Action filed May 8, 2009 ("May 8, 2009 Reply"), the Examiner continues to assert that Shimomura discloses "at least one phosphorous compound . . . [and] sulfur-containing additives . . . which include phosphorothionates ." Office Action, pp. 6-7. Shimomura, however, does not disclose expressly or inherently, nor does Shimomura suggest, the claimed combination of a phosphorothionate and a phosphorous-based extreme pressure agent other than the phosphorothionate, as recited in claim 1. Shimomura discloses use of phosphorus compounds listed at col. 7, lines 16-23, and use of sulfur-containing additives listed at col. 8, lines 18-31, separately. Shimomura, however, does not disclose or suggest any combined use of the phosphorous compounds and sulfur-containing additives. Shimomura also does not teach any synergistic effect from the combined use of the two compounds in the wear resistance and load capacity, which already would be improved by using either phosphorous compounds or sulfur-containing additives, but not in

combination. Further, Examples 1-22 in Shimomura at col. 12, lines 11-14 use neither a phosphorothionate nor a phosphorus-based extreme pressure agent.

In contrast, the as-filed specification further discloses that the claimed refrigerating machine oil compositions show unexpected superior results. The as-filed specification at ¶ [0011] discloses that these beneficial results are due to the synergistic effect from the combination of the phosphorothionate and the phosphorus-based extreme pressure agent other than the phosphorothionate. Neither Kawahara nor Shimomura discloses or suggests such a combination, or any synergistic effects from such a combination. One of ordinary skill in the art, having considered Kawahara and Shimomura, without any knowledge of the claimed invention, would not have had any reason to choose a combination of a limited group of elements, including a phosphorothionate and a phosphorous-based extreme pressure agent other than the phosphorothionate, with predictable results from the synergistic effect of the combination.

The Examiner argues that the data submitted is not commensurate with the scope of the claims. Office Action, pp. 7-8. Applicant respectfully disagrees for at least the following reasons.

The nonobviousness of a broader claimed range can be supported by evidence based on unexpected results from testing a narrower range if one of ordinary skill in the art would be able to determine a trend in the exemplified data which would allow the artisan to reasonably extend the probative value thereof. M.P.E.P. § 716.02(I).

Tables 83-94 in the as-filed specification disclose a wide variety of base oils (Base Oils 1-8). Kinematic viscosity of Base Oils 1-8 ranges from 12 mm²/s to 195

mm²/s at 40 °C. In addition, Tables 83-94 in the as-filed specification discloses a variety of oil agents (B1-B8). Since the number and variety of compositions shown in Tables 83-94 are so numerous and broad, one of ordinary skill in the art would be able to determine a trend in the exemplified data in Tables 83-94 and extend the trend to a broader scope of the claimed composition, and therefore would reasonably recognize that the entire scope of the claimed composition would result in the beneficial results in the same manner as the tested compositions.

Furthermore, the Examiner's allegation that "Tables 83-94 recite the presence of a refrigerant which is also not reflected in the claims of the instant application" (Office Action, p. 8) is incorrect. The as-filed specification at ¶ [0212] discloses that a refrigerating machine oil composition is mixed with a refrigerant to form a refrigerating machine fluid composition in a refrigerating machine. A refrigerant, therefore, is an element of a refrigerating machine fluid composition, not an element of refrigerating machine oil composition. Further, the refrigerants in Tables 83-94 are listed only to show the type of refrigerant used in the evaluation test for each example, as disclosed at ¶ [0248].

In order to more clearly reflect nonobvious advantageous features of the refrigerating machine oil disclosed in the Tables, Applicant has amended claim 1 to recite a kinematic viscosity ranging from 12 mm²/s to 195 mm²/s at 40°C, the phosphorothionate is selected from tricresyl phosphorothionate, triphenyl phosphorothionate and tri(n-octyl) phosphorothionate, the phosphorus-based extreme pressure agent other than the phosphorothionate selected from tricresyl phosphate, triphenyl phosphate, and tri(n-octyl) phosphate, and the oil agent is selected from butyl

stearate, diisobutyl adipate, diisodecyl adipate, glycerin monooleate, gluceric trioleate, oleyl alcohol, glycerol ether, and stearic acid.

For all of the foregoing reasons, and in view of the above-described amendments, Applicant respectfully submits that Kawahara in view of Shimomura does not render obvious the claimed refrigerating machine oil composition.

Claims 2-9 depend from claim 1 and incorporate all of the features recited in amended claim 1. Claims 2-9 are not obvious over the cited references at least due to their dependence from amended claim 1.

Claim 10 recites a refrigerating machine oil composition comprising a prescribed base oil, a phosphorus-based extreme pressure agent, and at least one oil agent selected from esters of monobasic acids and monohydric alcohols.

The Examiner alleges that Kawahara discloses the corresponding elements recited in claim 10. Office Action, p. 3.

The refrigerating machine oil composition recited in claim 10, however, also has unexpected beneficial results that were not predicted in Kawahara, alone or in combination with Shimomura. For example, in Tables 1-83, all examples wherein B1 (butyl stearate) containing a combination of a phosphorus-based extreme pressure agent and an oil agent selected from esters of monobasic acids and monohydric alcohol show beneficial results, *i.e.*, less abrasion volume and abrasion loss, in comparison with examples which do not contain such a combination of a phosphorus-based extreme pressure agent and an oil agent selected from esters of monobasic acids and monohydric alcohols.

One of ordinary skill in the art would not reasonably have expected the successful results exhibited by the claimed composition using the combination of a phosphorous-based extreme pressure agent and at least one oil agent selected from esters of monobasic acids and monohydric alcohols. See M.P.E.P. § 2143.02.

For at least the above reasons, claim 10 is allowable over Kawahara, viewed alone or in combination with Shimomura. Claims 11-16 depend from claim 10 and incorporate all of the features recited in claim 10. Claims 11-16 are allowable over the cited references at least for reasons the same as set forth above for claim 10.

Applicant respectfully traverses the rejection of claims 1, 5-12 and 14-16 for alleged obviousness-type double patenting over claims 10-18 of copending U.S. patent application No. 10/566,494. Nevertheless, in order to move this case forward, Applicant submits herewith a Terminal Disclaimer, rendering this rejection moot.

New claims 17 and 18 further recite that a pour point of the base oil ranges from -40°C to -25°C, which is neither disclosed nor suggested in the cited prior art.


In view of the foregoing amendments and remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account 06-0916.

Respectfully submitted,

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Attachments: Terminal Disclaimer
Request for Continued Examination (RCE)